

July 2. Davis wires that Nair liver Vicoosa Alagoas negative; this case was autopsied by Almeida about June 18th; was young child without typical history but living in known heavy yf focus. Almeida notified.

Wilson wires regarding Barros Barreto account; reply that account should be charged through the laboratory to be paid entirely by the RF.

Visit ten houses in Zone 51 with the guarda and Crawford; one steg larcas focus found in barrel; nobody complaining of carapanas now but several state that some time back there were many mosquitoes.

Discuss with Dr. Albino Cordeiro the possibility of autopsies in the interior; he states that the problem will be very difficult to solve and that he personally believes nothing ~~can~~ be accomplished except through doctors of the health services or through doctors who also happen to be intendentes of the counties where they live; nothing is to be expected of the tabelliaes (registrars) as he has never even been able to secure from them reports on the total number of deaths occurring in their districts! Then too the people of the interior are very ignorant and are very superstitious regarding the bodies of their dead; all in all, it is plain that he advises against the making of the attempt to secure livers from the interior. When Dr. Crawford and I are insistent that the matter is of sufficient importance to warrant the attempt in spite of all difficulties, he suggests taking us immediately to the governor. Dr. Eurico Valle, the President of the state, receives us cordially and asks for all the latest information regarding the local yellow fever situation. I compliment him on the fact that it was through his support that we were able to establish the presence of yellow fever in Belem through routine autopsies and stress the point that when I asked for that support in April, we had nothing more than a general idea that the disease might be here; that we had thought possible to discover the disease with a large number of autopsies over a number of months but that as a matter of fact, the third autopsy was positive. It is pointed out that today we are in an entirely different situation; knowing that the disease exists in Belem, we are forced to admit that the disease has wither hung around in Belem since July of 1929 or else has been subject to exportation and importation since that time. (Of course both hypotheses may be true at the same time.) In any case for the future of the control work it is important that we know how much of the disease exists in the interior of the state. Dr. Valle gets the idea immediately and suggests that we call on the chief of the state police in his name and ask for cooperation and suggestions as to how such a service can best be organized in the interior.

During this conference with the president, the question of calhas is ventilated quite thoroughly; EV reports that the measure is being forced through as a municipal one which is where it should be according to the division of prerogatives; he insists that the measure should have been presented to the Municipal Council yesterday; the Secretary of state says that it is to be brought up for vote today.

Call on the chief of the state police who is also judge in Braganca; he suggests that Braganca be made one of the points of our contemplated studies as in 1925-26 there was an epidemic there of what he believes to have been yellow fever; from the details that he is able to give from memory it would appear that this may have been the case. The chief says that there are really three avenues of approach to the problem of getting livers from the interior; 1st. through the tabelliaes or registrars who are responsible for registering births and deaths in their respective districts. However burial often occurs at quite some distance from the seat of registry and often will have occurred several days before being registered; this most logical solution of the problem then which would appear to strike the source of supply is not to be recommended. The tabelliao also is not directly subordinate to the administrative arm of government and would have to be handled through the judiciary. 2nd. Through the sergeants of the state police who are to be found in every district; these men, however, have no direct connection with the mechanism of burial except in special criminal cases and are in many cases entirely illiterate having been chosen only on the basis of their ability to dominate their personnel and their districts. The only advantage in using them would be that they are ubiquitous and under direct control of the chief who is willing to help us in every way possible. 3rd. Through the intendentes or local county administrators; the intendente in each place is appointed by the governor as the local representative of the state government and is very sensitive to the suggestions made by the state.

July 2. continued. The intendente has under his direct control the administrators of the cemeteries who are generally very poorly paid and should be willing to take a real interest in getting liver fragments for a small premium per fragment. The chief recommends that we first try for livers through the intendentes. I accept the suggestion but insist that the attempt be limited to one or at the most two counties until the routine can be worked out. Dr. Albino indicates Vigia which lies between Belem and the Atlantic on the right bank of the Amazon as a good place to start as it is accessible and is probably the most important point of departure for the small boat trade covering the coast north of the Amazon. Actual details of organization are left for future determination. Dr. Crawford will probably go to Vigia to arrange details with the intendente.

Notes regarding discussion of local problems with Dr. Crawford during the last four days;

Medical Vigilance. PJC has been using one of his doctors in the afternoons to check up on the clinical histories of reported deaths which from their diagnoses might be thought to have been due to yellow fever. I suggest that this service be discontinued as soon as convenient without letting the local authorities and our own personnel know that the discontinuance was suggested by me.

Routine autopsies. Should not be allowed to take more time and energy than is absolutely necessary. Liver sections are all that are needed and these can be secured rapidly and easily. Do not waste time getting histories of cases before confirmation of yellow fever if additional visits must be made to secure them. A record should be kept of name, age, nationality, and place of death; a spot map of the city might be worth while. Suggested that subordinate employee be trained to remove liver sections.

Fumigation. Not a part of our programme. When pressure is brought to bear attention may be called to Dr. Theophilo Torres' report on the Fabrica das Chitas epidemic in 1907-08, the last epidemic in Cruz's time in Rio. Torres insists that the direction of spread of the disease was influenced by the direction of the prevailing winds carrying infected mosquitoes driven from infected houses by fumigation always in the same direction. Similar relationship has been claimed for cases occurring in upper and lower cities in Bahia.

Accidents to Employees. Workers injured in the line of duty may be sent to the Assistencia Publica and treatment paid by yellow fever service. Prefer that Dr. Crawford take no part in treatments.

Notification of Yellow Fever. The yellow fever service should always notify local health authorities of both the state and the federation; newspaper notifications should come from other sources. (The two accidental confirmations of May were notified by PJC to Dr. Albino; the governor of the state suggested to Albino that the cases be not reported.) Should take into due consideration the diagnoses made by Dr. AbenAthar but should always submit specimens to Davis for confirmation.

Classification of Guardas. Suggest relatively small difference between salaries of guardas of different classes; probably 220\$, 240\$ and 250\$ would be reasonable basis; focus found behind guarda by GC to be counted against guarda for classification only after verification by doctor or guarda chefe geral of the service. Focus behind guarda to be counted only if found within 36 hours of the time of his visit.

Classification of Guarda Chefes. I fail to approve this idea. GC is in responsible position at higher salary and is supposed to know his job. Suggest more rigorous checks on service of guarda chefes with severe penalties for defects in their service; guarda chefe not justified in leaving foci. Do not classify but fire for inefficiency.

Increases in personnel. Should be made only after due authorization. All American directors will be constantly informed of my whereabouts by telegram. Authorization at present time is made for appointment of guarda chefe to direct and check work of the gutter squads; for increase of office personnel to permit of all strictly routine work being done by subordinates, to make block indices available on following day. Also special clerk may be hired to keep file of

July 2. continued. legal notices and fines.

Distribution of Fish and Sealing of Water Boxes. As both Muench and Crawford believe that the institution of these measures which are expensive would not greatly better the local situation, it is suggested that educational means be attempted to get deposits fished and water boxes sealed. Fish will not be furnished here but are so readily available on all sides that no one should have difficulty getting them. In the meantime, first oiling and breaking and then fining is to be followed out in repeating foci.

Station Journal. Only one station journal is to be prepared in Belem. The doctors working under Crawford should submit to him whatever details of their work he desires; important points in their reports or regarding their work may be included in the station journal. The station journal should be limited to relevant information; correspondence and telegrams need not be copied except in so far as it is desirable to insert verbatim instructions or vital information.

It should be remembered that the station journal is a Station Journal and is neither a personal diary nor a narrative report to the central office; any matter requiring action or discussion by the central office may be mentioned in the station journal incidentally but should also be called specifically to the attention of the director by special letter covering the point. The station journal is intended specifically as a running history of the service for the future orientation of the director on all important points for which he would otherwise be forced to depend on memory and for the orientation of possible future directors who have no first hand knowledge of the situation.

Sick Leave. Employees reporting sick are to be investigated by the GCG or one of the medicos. Each case should be judged on its merits and pay continued in judgement of local director up to maximum of two weeks.

Mother Foci and Breeding Roof Gutter Squads. When daily information on steg indices by blocks is available, special guardas may be detailed to work dirty blocks to discover pupal foci. A special ladder gang is to be detailed to the examination after fifteen days of all roof gutters found breeding on previous round.

Stamping of receipts for payments. Up to the present time the business houses of Para have refused to sign duplicate and other copies of receipts without affixing revenue stamps to such copies. In the past two copies with stamps have been submitted, one for the government and the other for the RF accounts. The other copies that must be filed in various places are nothing more than the accounts as presented and carry no notation to show when, if, and to whom paid. Suggest that a rubber stamp be prepared carrying the declaration to be signed by the house that a receipt for payment was signed on such and such a day.

Numbering blocks. Suggested that blocks be numbered on the four corners with arrows indicating the itinerary of the guarda and the number of the zone.

July 3. TO FFR - JUNE 29 to JULY 2.

Authorized increases

*Office - 2 if necessary
1 cc for culcha gangs
1 cc for culcha gang
1 cc for Mother Foci
2 Servantes for culcha gangs.*

Six squads of 50 men each now on vacant lots. Can probably be reduced after first turnover. Only one man now on ditches and only 24 men in dist. 7 & 8 as order & seventeenth guardas

July 3rd. After discussion of local situation with PJC, authorised the following increases personnel: office staff, 2 if necessary; gutter gangs, one guarda chefe, one guarda, 2 serventes, 'these squads of 5 men each, now working on vacant lots. This number can probably be reduced after the first time over; one man now on ditches and 6 men in districts 7 and 8 is one less each serventes working with the guarda), mother foci squad, one guarda.

July 4th. Arranged with Dr. Albino for our men to get the keys of empty houses at 4 p.m. one day returning same at 2 p.m. following day. PJC and I visit vacant lot squads and find excess of zeal in cutting trees and slack work in collection of water containers. Sail at midnight on Itapé for Rio.

July 5th. On board Itapé.

July 6th. Spent several hours in São Luiz Maranhão. Dr. CM and guarda chefe report everything in good shape with recent emphasis on prevention of gutter breeding. I explain to CM result of routine autopsies in Belém. He promises to secure in the near future 30 or 40 autopsies from São Luiz. He is not so hopeful about autopsies from the interior. Have conference with Dr. Pires Leal, Director of Prophylaxia Rural for the State of Piahy, with headquarters in Therezina. Dr. Leal is a brother of the Governor of the state of Piahy and has been bringing pressure to bear during the past year to secure a yellow fever service for his State. I have promised him such a service just as soon as he secure a positive autopsy on yellow fever. Dr. Leal has not heard of any suspect cases in his State.

July 7th. On board Itapé.

July 8th. Fortaleza. Lunched with Dr. Uchoa. He reports local situation unchanged. SU is anxious to be relieved of the responsibility of the yellow fever service. I suggest Doyle will be able to take over about August 10th to 15th.

July 9th. On board Itapé.

July 10th. Recife. Dr. Rickard demonstrates first working model of instrument for removing liver section. This model appears practicable and should reduce the danger of infection of persons securing tissues and should make the operation more acceptable to the public. ERR reports satisfaction with new forms but suggests waiting longer before general adoption. Wire Dr. Rocha requesting statement of future plans.

July 11th. On board Itapé

July 12th. Bahia. Saw convalescent suspect at Spanish Hospital with Dr. Fernando Luz. My impression is yellow fever. Request Cunningham be sent to Aracajú not later than July 15th. Secure list from laboratory of people in Magé from whom further blood specimens are to be procured. Davis and Shannon returned today from Ilheos. They believe Ilheos infected. (Luz, p. 1000)

July 13th. On board Itapé.

July 14th. On board Itapé. Arrived Rio 7 p.m.

July 15th. Day at office largely routine. DBW reports suspect cases in Spaniard, Bahia. Probably influenza. (Later July 22nd DBW reports lung consolidation), probable diagnosis influenza pneumonia. Conference with CF. Quite frank statement to CF of difficulties of situation in North. Reported opinion regarding Ilheos. CF very anxious for immediate steps. I reply Wilson has been authorised to institute control measures there as soon as laboratory report is available, but that I see no reason for precipitated extension as far as Rio de Janeiro is concerned, because it would appear that the yellow fever virus has been present

never confirmed
in Ilheos at least since January, furthermore this is the least favourable season of the year for development of yellow fever in Rio.

Waldemar Rocha cables resignation from yellow fever service. *ERNESTO*

July 16th. Registered garage transfer with the police. Dr. Paranhos comes to office and reports activities in New York.

July 17th. To Oswaldo Cruz Institute to discuss situation with Aragão. Spent the evening with Aragão and R. Lima discussing various phases of yellow fever work. Secure promises of white mice from both Oswaldo Cruz and The Biological Institute in São Paulo. DBW cables suggesting Dr. Lima Netto be relieved from service in Bahia. Release approved with payment of one months' salary.

July 18th. Presented report of yellow fever service for May to CF. Called on S. Lima and discussed local situation with him. Call Dr. Ferreira Pinto regarding samples from Magé but learn his sisters' illness will prevent his working in the near future. Cunningham finally left for Aracajú today after missing both boat and train. *not written*

July 19th. Anderson of Standard Oil offers services of patent attorney for making out necessary papers on tissue instrument invented by Rickard. Doyle ordered to proceed to Bahia and thence to Recife immediately. Conference with CF who approves Dr. Rodrigues Porto to Recife, Dr. João Cesar Oliveira, Fortaleza. Dr. Braulio Furtado Luz, Rio. These men will be hired immediately as well as Dr. Virgilio Oliveira and Dr. Couto Myer in Bahia recommended by CF. Notify CF that I shall move my headquarters to Pernambuco in the near future.

July 20th. Sunday.

July 21st. Receive at Treasury Rs. 17:323\$978, various accounts. Wilson reports Biao en route to Rio on Prudente de Moraes. Davis reports virus from 6th mouse passage killed monkey y.f.

July 22nd. Lunched with Decio Parreiras, Director of yellow fever service, State of Rio de Janeiro. Authorised following statement in his report regarding our results in Magé: "Magé studies indicate more immunity than yellow fever". Our results are not ready for publication and probably will not be for some time yet. DP calls attention to fact that yellow fever in 1928 and 1929 was limited mostly to zone Nictheroy, Rio, Rezende, whereas 1930 yellow fever has been found in Magé and Cantagallo to Campos zone. Admits yellow fever in following places: Between April 1st and June 30th, 1930 - S. Aleixo (Magé), Portella, Tapera (Campos), Itoacara and Cantagallo. In addition he states confidentially that tissues from a positive case in the city of Campos, arrived in Nictheroy today. DP and I discuss question of precedence in organisation of routine autopsies. I suggest he publish report immediately so as to get ahead of my report. DP refuses to publish on own authority. Discuss the difficulties existing between Health service in the State of Rio and National Department of Health. However, he promises to furnish me with details of his service and results to be included in a note in "O Saneamento".

DP states Dr. A. Luz is now working in Magé. Promises full cooperation in securing blood specimens from Magé. DP reports that Cantagallo was diagnosed from analysis of death certificates and entire town had been fumigated and entire larval service organised two days before first clinically suspect case was reported by local physician.

Chandler liver Pará reported positive by Davis.

Thomson's letter
July 25. (Special note (not on copies) M.E.C. *Thomson's letter* write T.A. from my that he expects to see him before the end of the year!!! This checks with M.E.C.'s letter to S.W. saying that he still looked forward to moving the guarda chefe in Fortaleza.

July 22nd. (continued). Call on Mr. Edwards, manager of the Nyrba of Brazil, and discuss method of securing rebates on passages. Mr. Edwards promises to send recognition cards for our use. We discuss quite frankly the possible relationship of air passenger service to the spread of yellow fever and I suggest that the air Companies should be very much interested in the control of the disease as quarantine measures instituted among air passengers would most certainly kill the air passenger business. Incidentally I suggested that the cost of passages for men in our service should be further reduced.

July 23rd. At my request Dr. Henrique Aragão came to the office for a discussion of a special yellow fever commission suggested by Dr. Connor to study the yellow fever situation in the North and make recommendations. This commission was to have been appointed by Dr. Fraga at Dr. Connor's suggestion and HA reports it would probably have been composed of Dr. Waldemiro de Oliveira of São Paulo, Dr. Thomaz Alves and himself, with probably two other as yet undetermined members. HA and I discuss quite frankly the possible utility of such a commission. HA sees no possibility of the report of such a commission influencing the betterment of water supply systems in the North. Under present economic conditions the Federal Government will be unable to assist in bettering local water supplies even if such a measure were possible politically.

I point out to HA that we actually have at present four organisations operating in what may be considered possibly permanent endemic areas, namely the D.N.S.P. in the Federal District, the Prophylaxia Rural in the State of Rio de Janeiro, the Prophylaxia Rural in the State of Minas Geraes and the Yellow Fever Service of the Rockefeller Foundation in North Brazil. Furthermore it would appear that the State of Espirito Santo, lying between the States of Bahia and Rio de Janeiro, is without any regularly organised Service. The only possible benefit I can see for such a commission might come from the Commission's development of a programme for really united control of the yellow fever problem. In order to secure such a result however, in the existing political conditions, the Commission would have to be endowed with more authority than could be possible if organised and appointed by Dr. Fraga. Nothing less than a congressional or presidential Commission could give the desired results. The appointment of a commission as was suggested would probably lead to a report full of recommendations regarding methods of control which might very easily serve as a basis for unnecessary criticism of existing services. I tell Dr. H.A. that I shall discuss the Commission frankly with Dr. Fraga in case Dr. Fraga brings up the subject but that otherwise I shall not push the matter.

HA believes Fraga will take an interest in case he continues with the Health service under the new Government in November, mainly in yellow fever and an Institute of Hygiene to be established in Rio de Janeiro.

HA hopes to work with mice in the laboratory in Rio; has no desire to do epidemiological surveys in North Brazil.

Rickard reports suspect autopsy Correntes, Pernambuco.

Doyle left ~~for~~ Aracajú 22nd. July. Cunningham's request for special guarda for intimation service, referred to Wilson.

July 24th. Cunningham reports guarda attacked with resulting laceration of scalp, while on duty. I cable Governor Manoel Dantas requesting necessary support.

Doyle sails for Pernambuco.

see item follows page 111

Discussion of yellow fever epidemiology with Drs. Lessa and Jansen. I point out importance of recent findings in State of Rio de Janeiro and North Brazil and

stress importance of routine liver examinations.

Word received of death of Dr. Theodore B. Hayne from yellow fever, at Lagos with onset 11 days after inoculation of immune sera. ?

New York office advised regarding Budget needs for 1930.

July 25th. Bião arrived in Rio from field trip investigating São Francisco River zone, State of Bahia. He collected bloods for the laboratory from several points; found nothing suspicious in zone and secured no histories of suspicious cases with the exception of two cases in Barra occurring in 1925 or 1926.

Bião and I visit Oswaldo Cruz Institute and arrange for necessary sterile supplies for collection of bloods in Magé and also arrange for more white mice to be shipped to Bahia laboratory. Called on Fraga and Bião reports on São Francisco trip. CF promises to arrange for exhibition of the new yellow fever film prepared under the auspices of the Health Department for my benefit. CF agrees to come to our office on Tuesday, July 29th for a more complete discussion of the yellow fever problem than is possible in his office.

Learn from confidential sources of suspect case from Nictheroy in Hospital (case visited July 26th; somewhat jaundiced with positive diagnosis malaria. Another suspect case died yesterday; autopsy diagnosis Pyelonephritis.)

The Governor of Sergipe cables aggressor fined 500\$000 by State Health service and faces further prosecution criminal courts. 11/11/30

Fraga on learning of death of Dr. Hayne in Africa, suggests Foundation use Brazilian personnel from endemic areas.

Maneco.
July 26th. Dr. Ferreira, professor of Hygiene, Medical School in Nictheroy spends morning at office

Bião and I secure material for Magé from Institute.

July 27th. Sunday. Bião and I spend day at Magé; secure 15 bloods for repeat examination by laboratory. Bião will continue this work alone after today.

July 28th. The political situation is somewhat complicated by the assasination (July 26th) of Dr. João Pessoa, the President of the State of Parahyba and the vice-President of the opposition in the recent national election of March first. Recife where the assasination occurred and Parahyba are both reported to be in a turmoil.

July 29th. Attended funeral of the sister of Dr. Ferreira Pinto.

Dr. Ernesto Paranhos discusses Mayo fellowships.

The recent suspect case designated for want of better information - as "Correntes X" came to the notice of the Public Health authorities through a police request for autopsy. Death had been so sudden and unexpected that poison was suspected. (this case positive NCD). Correntes is in Pernambuco epidemic zone.

As arranged last week Dr. Fraga came to the office today for a discussion of the yellow fever programme in North Brazil. I outlined for him the programme approved by Dr. Sawyer; I stressed particularly the value and need of generalised autopsies throughout the yellow fever area. CF agreed to issue special decree or authorisation to be drawn up by us to facilitate working with local authorities in the North if difficulties should arise regarding autopsies. CF requests another copy of annual report for 1929 alleging that previous copy submitted by Dr. Connor has disappeared from his files. I notify Dr. Fraga definitely that I expect to transfer my headquarters to Recife.

Brought up question of Commission suggested by Dr. Connor for discussion which was very brief. CF agrees with me that there is no occasion for such a Commission at the present time.

Rickard advises of delay in Doyle's transfer to Parahyba due to unsettled political situation.

July 30th. Drawings of new instrument due to arrive today, were not received.

Wired Dr. Cunningham that only financial matters to be taken up directly with this office; everything else to be referred to Dr. Wilson in Bahia.

Circular cable sent advising all posts of my proposed trip to Recife August 4th.

Box of 70 white mice received today from Rocha Lima in São Paulo which I shall take to Bahia for Davis.

July 31st. Lunched with Dr. Thompson Motta, Director of the Assistencia Hospitalar.

Lunch given in honour of Dr. C.C. Burlingame of the New York Medical Center, who has been to Uruguay at the invitation of the Uruguayan Government to advise regarding their medical center. Dr. Burlingame was particularly interested in what has been done in Brazil in the development of the nursing profession.

SU advises Dr. João Cesar sailing for Recife August 4th. from Fortaleza.

Wired Dr. Rocha suggesting he await me in Recife.

Suspect case reported from Pará; J. Kislanov, recovered. No albuminuria.

August 1st. Mr. Robinson, of the Brazilian Land and Cattle Company, called and reported much mal de cadeiras at Miranda. Requested further information regarding the use of Tryparsamide.

Information received Parahyba service has been unavoidably suspended because of excitement due to recent assasination of Pessoa.

Dr. Rickard cables liver instrument gave good results on recent cadaver. Poor results on 18 hour cadaver. Decio Parreiras sent me drawing of liver punch dated July 12th marked "cliché para O Saneamento". AA advises however, that such punch has never been constructed; that today he overheard orders being given for construction by Lutz, Ferrando of liver punch along lines of Rickard model described by me to Dr. Decio on July 22nd.

Rickard's drawing not yet received. Am wiring today for duplicates.

AA reports payments will surely be made within next 15 days. I refuse, however, to leave signed check to facilitate the payment during my absence. AA reports he has been made director of the yellow fever service for the first district in Nictheroy without increase of salary.

August 2. Letter written to DP asking for working model of his liver punch since he submitted with the drawings no notes regarding results obtained with it; also stating officially to him that Dr. Rickard had developed an efficient punch. ERR reports that three perfect liver sections were taken from three different cadavers in a total elapsed time of seven minutes.

Drive to Institute to secure another seventy, rather fifty, mice to be taken to Davis in Bahia. This makes a total of 120 available including those received from Rocha Lima this week.

Aragão transmits Chagas' request for used monkeys for other laboratory experiments.

August 3. Sunday. All day at the office. Translation of WAS letter for Fraga and quarterly yellow fever report.

August 4th. Telegram from ERR announces drawings are to arrive on Arlanza: Arlanza arrives at 8 am and by dint of 'special influence' the drawings are secured from the postoffice at 3pm; hurried consultation with Humpstone and Anderson and lawyer of Standard Oil; application for patent will be made tomorrow in name of Dr. J. Tomaz Alves, since I shall not be here to sign necessary papers.

Meet Captain Yancey of the USA to Italy flight.

Consultation with Shobinger regarding gutter construction on the large new shops of the Light company in Rio. Estimates proposed alterations will cost about one thousand dollars.

Bião reports securing only forty more bloods during the week; however, this may not be so bad since the group to be bled in Magé is now limited whereas last year we were bleeding everyone. Gave him additional list of subjects to be bled and arranged for more sterile material from Manginhos.

Woman physician from school hygiene section of São Paulo requests RF fellowship; would be satisfied if RF would pay passage money as present salary could be continued from Health Service. Promise to discuss hereafter with Dr. W. de Oliveira although she knows the fellowship service is already showing a deficit.

PanAmerican Airways Company's representative calls all worked up over a cable received from Miami ordering to-day's plane leaving Rio tomorrow not to touch in Pará because of yellow fever epidemic there; discuss quite frankly the actual situation in Pará and give him statement that no cases of yf have been confirmed for Pará since the 21st of June; wire PJC to give similar statement on arrival of plane in Belém. I take advantage of the moment to impress upon this representative the importance of yellow fever control to the air transportation companies who have only one product to sell, viz., speed; five or six day quarantines would of course spoil everything for them. Suggest that PanAmerican planes be available for my travel even though they are not yet carrying passengers.

Before embarking on the Itapagé (Capitan Parry) at 4 PM, complete translation of WAS letter and autopsy decree for signature of Fraga.

Dr. Braulio Luz arrived Bahia July 31st.

August 5th. On board Itapagé.

August 6th. Meet Dr. Guimaraes, State Superintendent of Public Instruction State of Bahia. Speaks English knows the US and should be of assistance in giving information regarding the interior of the state of Bahia.

August 7th. Met by Wilson, Davis and Shannon. Call on Frobisher who is having his third or fourth attack of 'yellow fever'; Davis refuses to take these attacks seriously anymore. Onset Sunday August 3rd, with very definite headache and body ache; some fever and possibly some disparity between temperature and pulse; slight albuminuria on third day and slight icteric tinge to sclera today. Feels quite weak and listless.

Delivered to NCD following material; 70 mice from São Paulo, 50 mice from Rio, one box of sera from the San Francisco trip of Bião with included list and one box of sera from Magé with list.

NCD reports that the previous batch of mice brought from the Institute were infected with mouse typhoid and that this mouse typhoid is capable of simulating the pathological picture of yellow fever in mice including black vomit; in attempts to filter out the offending organism from preparations of mouse brains it appears that the virus has been lost after the twelfth passage; NCD suggests that time can be saved secure mouse strains from NY; following wire sent, "ROCKFOUND RIO SEND NIGHT LETTER NEW YORK QUOTE SEND DRIED INFECTED MOUSE BRAINS SOPER."

NCD reports Description of Male Genitalia of A. minor sent for

C O P I A*Liver Collection*

ÀS AUTORIDADES SANITARIAS, AOS CLINICOS E ÀS POPULAÇÕES DO
NORTE DO BRAZIL

Recentes experiencias em differentes localidades do norte e sul do Brazil têm demonstrado a necessidade de autopsias systematicas nas regiões endemicas ou suspeitadas endemicas de febre amarella, com o proposito de descobrir a presença de casos dissimulados desta doença.

Aconselho calorosamente ás autoridades sanitarias, aos clinicos e a todos que se interessam pela extincção da febre amarella no Brasil, que promovam e facilitem autopsias em cadaveres de pessoas que tenham fallecido com menos de dez dias de doença sem assistencia medica, e com symptomas febris. É uma medida de maxima relevancia que a actual administração sanitaria nacional deseje facilitada por todos que de qualquer modo possam concorrer para tão patriotico objectivo.

Rio, 11 de Agosto de 1930.

(assign.) Clementino Fraga

Director Geral do
Departamento Nacional de S.Publica.

August 7th. Continued. publication at least one year ago. I therefore wire Dr. Costa Lima to that effect: Description male genitalia A. minor has already been submitted for publication.

NCD reports serum of Tobias Printsak of Natal failed to protect monkey. This case was seen by Drs. Sawyer and Connor in June and considered quite suspicious!

Long incubation periods of apparently thirty days have been recently encountered by NCD in monkeys in the laboratory. He believes that all possibility of cross infection can be ruled out; NCD was until quite recently very sceptical regarding such long incubation periods but is not convinced that they do occur at least in monkeys. Such lengthened periods are not necessarily associated with mildness of the strain as one animal at least died suddenly and unexpectedly on the thirtieth day with typical lesions of yellow fever.

Discuss question of NCD'S and DBW's leaves due next year; assure both of them that everything possible will be done to let them go on schedule time and that the general policy is to get all personnel on leave from this field when due.

Inquire of NCD policy regarding the disposal of used monkeys; none are being allowed to leave the laboratory alive excepting a few that have been ceded to otherscientific institutions for specific studies. He agrees to ship a dozen rhesus to Chagas at Manguinhos as soon as available.

Davis, Shannon and Wilson are requested to always submit expense accounts promptly; not to be in my hands not later than the end of the following month.

Learn that contrary to Davis publication he has since been able to secure transmission with a small percentage of taeniorhynchus; this brings up the problem of their control especially in Aracaju and Macel6.

SHANNON TRIP TO AMAZON. NCD brings up Shannon trip for discussion; Shannon called in and following details learned; MEC submitted Shannon's proposals to FFR and the "Amazon trip" was approved whereas the "AMAZON MOSQUITO STATION" was left for future consideration; according to the copy shown me of the proposal to FFR the Amazon trip provided for leaving the laboratory in October with arrival in New York about the first of January which would mean a period of three months maximum including travel time from Bahia to New York. As the proposed trip has been altered because of changes in the personal plans of Shannon, I suggest that a more definitely detailed plan be submitted to FFR for approval. After discussion with NCD and RS the following was outlined as a reasonable estimate of the proposed trip;

Shannon to leave Bahia about Sept. 15th, to spend five days at Fortaleza, five days at São Luiz, five days at Therezinha, thirty days at Iquitos, fifteen days at Manaos, seven days at Obidos, seven at Santarem, seven at Prainha, seven at Breves, thirty days at Belem, returning from Belem to Bahia.

In addition approximately fifty seven days will be needed for travel on the round trip, so that a total elapsed time of one hundred eightyfive days may be estimated for the trip. In other words Shannon would be away from the laboratory from Sept. 15th to March 20th. Shannon states that present indications are that the government service (Bureau of Entomology) to which he is attached will require his services July 1st 1931.

NYRBA COURTESY CARDS delivered to Wilson, Davis, Shannon, Frobisher, Cardoso and left with DBW Cunningham's.

MATERIAL FOR ALBB sent by Haragão given to DBW; card left for ALBB.

ARACAJU situation discussed with DBW; advise him to visit Cunningham as soon as possible.

FUTURE EXTENSION OF BAHIA SERVICE discussed with DBW; Advised to begin freeing himself from the detail work on city of Bahia service; should become familiar with population distribution and with methods of transportation throughout the state; should look up records of previous work of yellow fever service in the interior; increase in number of apprentice guardas authorized looking to the training of men for the interior. Calha work should be continued as at present; turma de matto gang may continue as at present as the present squat keeps the truck constantly busy.

GENERAL PROGRAMME FOR NORTH as outlined in WAS letter of JULY 3 rd discussed with DBW. Promise to return as soon as possible for a thorough inspection of the Bahia service.

DBW states that ALBB is anxious that our central office be located in Bahia and assures me that office quarters would be immediately at our disposal in the Secretaria de Saude. I explain that for the present phase of the campaign, Recife is a better location but that after the period of intense development there is over, it may prove best to come to Bahia.

August 7th. continued second. PARAHYBA DANGER mentioned by DBW; I point out that this danger has been duly recognized for some time but that conditions have been such that even definite information regarding the situation has been difficult to secure and that last week our service was forced to close temporarily in the capital city because of the local disturbance due to the assassination of the president of the state. The Federal Government is now coming into the picture and is concentrating troops at the frontiers of Parahyba in both Rio Grande do Norte and Pernambuco.

ALMEIDA WIRES SUSPECT YF PINDOBA three leagues from Vicosa; to investigate and advise me Recife ninth.

FFR wires "why is PATENT necessary," answer via Rio, "Patent advisable to prevent patent by outsiders and consequent payment of royalties by us." 11/11

Rio, 6. "Aqui esteve Doutor Pereira Souza representante PANAMERICAN AIRWAYS dizendo sua carta a esta companhia sobre ultimos casos febre amarela Para não satisfaz inteiramente fim desejado e pede um telegramma seu directo a service saude Americano e esclarecendo situação sanitaria Pará de que depende passagem avioes ali ponto peço resposta sua decisão ponto Alves."

Replied as follows, "Rockfound Rio. Following cable sent to Crawford today quote Please inform American consul exact known status yellow fever in Belem stop PANAMERICAN AIRWAYS have received orders to drop Belem from itinerary because of ruling United States Public Health Service stop Contrary to my previous instructions your statement of health conditions Para should be made to American Consul and to local Health officials and not to the Panamerican company stop Can consul advise USPHS telegraphically of present conditions. Soper."

AUGUST 8. REVOLUTION in RIO GRANDE DO SUL Reported in Wireless message received on board Itapagé.

August 9. Arrived Recife. Alarming news regarding uprising in Rio Grande do Sul not confirmed. Met by ERR. Drs. Doyle and Rocha arrive from Parahyba the former enroute to Fortaleza, the latter enroute to São Paulo, both sailing this evening. Invited both to lunch but Rocha had previous engagement.

WRocha leaving our service at the present time because of family complications in São Paulo; he hopes to reenter our service later but I make no promises. His return passage to Rio is being paid by the service but should he return to work in the north, return passage must be paid by him. Rocha's work has I believe been satisfactory although Doyle insists that the service in Parahyba was so good when he left it that it would run itself. During the recent disturbances in Parahyba over the assassination of Pessoa, the service was closed during an entire week; the following week Doyle examined personally a large number of houses and found almost no stegomyia breeding. Rocha is stopping off in Bahia where Davis can show him how to prepare sera for the laboratory; R has promised to take one hundred venules with him from Rio to Piracicaba, in the interior of São Paulo and secure non-immune bloods for control studies in the Bahia lab.

I wire Davis of this plan and wire Rio to pay Rocha fifteen days salary and three hundred thirty five milreis travel.

Doyle reports that everything is going all right in Parahyba but that he does not have a lot of confidence in Dr. Porto who has just taken over. Wire Uchoa that Doyle will be in Fortaleza on the 11th. Doyle was instructed to take over service as is and make no changes before my next visit to the north beyond increasing the number of guardas in training; Doyle knows that extensions into the interior are planned for the near future.

ERR reports that INSTRUMENT is great success.

ERR and I call on Dr. Gouveia de Barros at his home. Sick.

Call on General Motors regarding car for Bahia.

Aug. '8. LIVER JOAO JUSTINO OF NATAL NEGATIVE LIVERS ADRIANO RAMOS SILVA AND THEREZA CONCEICAO OF PARA NEGATIVE YELLOW FEVER STOP SERUM TOBIAS PRINTSAK OF NATAL FAILED TO PROTECT MONKEY/DAVIS.

Advised Tavares of Natal results.

Aug.9. Estive hontem povoado Pindoba situado limite municipios Viçosa and Anadiaponto.

Then describes in portuguese illness with jaundice, anuria and hemorrhages which began in May; two fatal cases in July, one in June. Convalescents are icteric; no recent cases seen. PINDOBA has about 400 houses; service organized. Almeida. (State of Alagoas)/

This is undoubtedly extension of Vicosa epidemic.

August 10. SUNDAY/ ERR and I go to hospital where he demonstrates the delicate art of snagging out liver sections without touching the body or the sections and with only the liver punch of his invention. FFR cable disapproving patent received shortly afterwards.

August 11. Following telegrams received:

AMERICAN CONSUL ADVISED USPHS telegraphically today that last confirmed case yellow fever was June 21 stop Crawford. (I forwarded this to Rio to be transmitted to the Panamerican Airways representative. FLS)

DOCTOR VIRGILIO OLIVEIRA commenced work today Monday stop URGENTLY NEED MORE TRANSPORTATION FACILITIES stop Wilson. (This is candidate recommended by Dr. Fraga. To meet need for more transportation purchase was made here through Mr. Tate of Gen. Motors of new Chevrolet touring car delivered in Bahia at 4:50\$000 or \$462.00 at present rate of exchange. Car 1929 model.)

I wired Wilson and Cunningham that FINANCIAL REPORTS of Aracaju should in the future be forwarded to Wilson in Bahia rather than to Rio direct.

Wired Alves not to discontinue patent process as yet.

Personal telegram from Doyle's father forwarded to Fortaleza.

Advised Cunningham of arrival of American foresters in Pará.

Wired Crawford regarding need of more automobile transportation for Pará; at above price I feel we should get sufficient cars for the immediate future.

Write FFR proposing autopsy program on large scale.

Call on Dr. Gouveia who shows telegram from ~~GENERAL DEIVE~~ to ESTACIO COIMBRA saying that PEDRO LAGO requests intervention with Dr. Sonper to secure nomination of Dr. Bessa Oliveira to a post in the Yellow Fever Service in Pará.

Visceral Letter to FFR

Recife, Pernambuco, Brazil.
August 11, 1930.

Dear Dr. Russell:

One of the greatest difficulties in combating yellow fever in Brazil is that much of the time we do not know where the disease exists and at no time do we know its extent; in the absence of such knowledge we have only crude empirical ideas as to where and for how long expensive control measures should be carried out.

Until two years ago we were dependent on the notification of suspect cases with confirmation by autopsy for information as to the location of yellow fever. Such notification in endemic areas having slight movement of foreigners is notoriously deficient; when notified, autopsies often could not be secured because of late arrival of health authorities and in the absence of epidemic conditions certainty of diagnosis could not be established.

A great advance was made with the demonstration that M. shesuis is susceptible to yellow fever and during the past two years in Brazil yellow fever has been proven to exist in various localities by the infection of monkeys with blood from early suspect cases and by the demonstration of protection properties of the blood of convalescent suspect cases. Monkeys are expensive and to secure infection from early cases must be available close by; best results in the demonstration of protection properties are secured when the blood is drawn some thirty days after onset entailing a total delay of six to eight weeks from onset to confirmation of diagnosis by the laboratory.

More recently studies have been undertaken both in Brazil and West Africa on the distribution of immunity in different age groups through routine protection and complement fixation tests of representative samples of population of the places studied; very interesting results have been obtained and plans have been made for extending such studies in Brazil for the purpose of outlining endemic zones. The distribution of immunity even when correlated with age and probable time of attack (as may possibly be done in the future through comparison of results obtained by protection and complement fixation tests) can at best give only the previous distribution of the disease in space and time; the application of the results obtained to the immediate problems of the control program is not so clear. Thus a high percentage of immunity in a place may be interpreted to mean that the place is burned out and hence not dangerous; on the other hand it might be interpreted to mean that because of location or special local conditions the place is subject to constant reinfection in which case permanent control measures should be undertaken.

The defects in the above methods of learning where yellow fever exists from the ~~standpoint~~ standpoint of the control service are dependence on notification of suspect cases and failure to furnish up to the minute results. Recently, routine autopsies of fever cases with fatal termination have been made in Belém, Natal, and in the State of Rio de Janeiro; in Belém the existence of yellow fever was proven at two widely separated points within the control area a month before the declaration of a single suspect clinical case at another point; in Natal, where malaria has been epidemic and certain cases have closely simulated yellow fever, a rather large number of routine autopsies over three months has failed to reveal yellow fever; in the State of Rio routine autopsies have revealed yellow fever in districts thought to be clean and in which no suspect cases had been notified. ~~From~~ from the standpoint of the control service routine autopsies have already demonstrated that a controlled city without visible yellow fever for ten months still harboured the virus of the disease, that another controlled city in which doubt existed as to freedom from the disease is probably clean and that a district without control measures was urgently in need of them!

Different methods have been used to obtain autopsy material in the different places; in Belém autopsies have been performed by medical personnel from

2. FFR. August 11, 1930.

the Yellow Fever Service which pays the police department for transporting the cadavers to the morgue to avoid autopsies at the home; in Natal, the Yellow Fever Service has been paying a monthly subsidy to one of the health department employees, not a physician, to perform all indicated autopsies; in the State of Rio de Janeiro, the Yellow Fever Service has trained local registrars to perform autopsies and secure the necessary tissues with good success.

Although negative results cannot be considered final, the value of a large number of routine autopsies on fever cases terminating fatally within ten days of onset, scattered widely over the infectible area of Brazil over a period of months or years can hardly be overestimated in working out the details of the yellow fever problem. Following the visit to Niteroy in June when I saw seven liver specimens forwarded in one day by registrars from the interior, I became convinced of the practicability of securing such specimens without the expense of employing only physicians for the work. This is especially important as with the extension of the service to certain larger places throughout the endemic areas, our interest will be continually shifting to the smaller places where physicians are non-existent and where transportation is oftentimes poor. For testing the method in the north, the State of Pernambuco was chosen and on June 26th Dr. Rickard and I arranged with Dr. Gouveia de Barros to have the local registrars from the nine districts in the county of Nazareth called to Recife for training, instructions and instruments. On further investigation, the supposedly nine registrars proved to exist as only two who would be unable to maintain the close contact with all parts of the county needed for our purposes. Dr. Gouveia then suggested that each locality will have to be studied separately to determine who can best represent the service. In the meantime, Dr. Rickard, having certain scruples against permitting semi-trained individuals to work with possibly dangerous material, was working on an instrument designed to remove sections of liver without the necessity of cutting open the body with the scalpel. I saw the original working model on July 10th enroute to Rio and yesterday Dr. Rickard gave me a demonstration on the cadaver with good results. The instrument has been used on some fifteen cadavers; unsatisfactory results have been secured only in bodies long dead in which postmortem changes had partially liquified the liver.

The instrument is so designed that the piece of liver can be secured without the operator having to touch the cadaver; there is no occasion for rubber gloves as infective material does not come in contact with the hands; the instrument is simple consisting of but two pieces and is self-sufficient, no other instrument such as scalpel, forceps nor scissors being used; the operation is rapid ordinarily not requiring more than thirty seconds (Dr. Rickard removed liver sections from three cadavers within seven minutes after entering the morgue including the time required by the employees to remove the bodies from the boxes); the puncture is intercostal, the wound is small and neatly covered by the skin flap, no suture nor other special closing being required. The operation is so simple and rapid that especially trained personnel is not required; liver sections can readily be secured in the homes without great objections from the family of the deceased.

With the development of this instrument, I believe we are in a position to go ahead with an extensive program of liver examinations in North Brazil; the results should be much more rapidly available and of more value for the immediate future than those to be obtained through studies of immunity distribution. Many details remain to be worked out but I have already been assured of approval by the federal health service and four governors of north Brazil have promised their support.

I have gone into this matter somewhat at length as I feel that, if undertaken, it will absorb considerable time and money. I would appreciate your approval of the undertaking before going further.

Very Sincerely Yours,

Fred L. Soper.

Typhlocyba
Patent Discussion

Recife, Pernambuco, Brazil.
August 12th, 1930.

Dear Dr. Russell:

Your cable, "Patent disapproved" has been forwarded to me here. I have been advised that the instrument should be patented, not with the idea of preventing others from manufacturing and using the same but to protect our own freedom in its use. It has been suggested that the patent be taken out and then allowed to lapse in which case it would be open to all. If the program outlined in my letter of yesterday is approved, we will be requiring a large number of these instruments, in which case even a small royalty would far exceed the cost of taking out the patent. As you will notice in my diary of Aug. 1 and 2nd, a rival instrument is being developed, which would surely be patented for profit were it successful, and might be sufficiently similar to ours to cause trouble later. I left Rio for the north on Aug. 4th, after making arrangements for the patent to be taken out in the name of Dr. J. Tomas Alves; the application had been submitted and some ten dollars spent on stamps, etc., before your first cable of enquiry reached the Rio office. I believe that under local conditions the patent is sufficiently important that I am not withdrawing the application at this time but shall wait until I return to Rio and have an opportunity to learn the reasons for disapproval; I hardly suppose it is because of the cost but presume it is against the general policy of the Foundation to appear in the rôle of commercializing any new developments.

Very Sincerely Yours,

Fred L. Soper.



Recife, Pernambuco.
August 12th, 1930.

Dear Dr. Russell:

In Bahia last week Dr. Davis brought up the question of Shannon's trip to the Amazon valley for discussion; I was shown correspondence between Shannon and Connor and learned that the matter had been referred to you for approval at the time that Shannon's scheme for a special mosquito laboratory in the Amazon Valley was submitted. Your approval was given however on the basis of Shannon's proposal to make the trip enroute from Bahia to the United States, with scheduled departure from Bahia in October and arrival in New York before the first of January. As Shannon's plans have changed somewhat in the meantime, I have refused to authorize without first submitting the whole question to you again. The present plan is as follows:

Leave Bahia, Sept. 15th. Scheduled stops, Fortaleza 5 days, São Luiz 5 days, Therezinha 5 days, Iquitos 30 days, Manaus 15 days, Obidos 7 days, Santarem 7 days, Prainha 7 days, Breves 7 days, Pará 30 days, returning then to Bahia. I calculate that arrival in Bahia with the above schedule cannot antedate March 20th and might be somewhat later according to the connections that can be made by boat from the various points in the Amazon Valley.

Dr. Sawyer in discussing with Shannon the details of the trip suggested that he might be able to secure blood specimens for immunology distribution from the various places visited; Shannon has now suggested that we send a Brazilian doctor with him to collect the bloods. I have told him this would be impossible.

The above trip will entail the absence from the laboratory of at least six months and the working up of the material secured on the trip will naturally require several more. Shannon states that his present understanding is that the Bureau of Entomology expects him to return to his post there July 1st next year.

The discussion of this proposed trip brings up the whole question of the relationship of the laboratory to the control service. Had the trip remained within the bounds previously approved by you, I should have offered no opposition; since the time involved has been doubled I feel you should be consulted. Some day of course we shall have to investigate the Amazon thoroughly but I feel we have not exhausted the entomological possibilities of the actual zone of operations. For example we know very little about *Taeniorhynchus* although it is a tremendous breeder in some places during the rainy season and has been found capable of bite transmission recently by Davis.

Please cable your decision as date of departure is close
Russell *FCS*

Aedes Mosquitoes of São Salvador, Bahia

May - 1930.

		Transmits Yellow Fever
1.	Aedes (Stegomyia) aegypti (Linnaeus)	Yes
2.	Aedes (Ochlerotatus) scapularis (Rondani)	Yes
3.	Aedes (Ochlerotatus) serratus (Theobald)	Yes } Feeding expts. incon-
4.	Aedes (Finlaya) oswaldi (Gordon & Evans)	Yes } clusive. Injection of
		emulsified mosquitoes
		positive.
5.	Aedes (Taeniorhynchus) taeniorhynchus (Wiedemann)	Yes (In small % of expts.)
6.	Aedes (Ochlerotatus) hastatus (Dyar)	No (Adults refused to feed on
		monkeys)
7.	Aedes (Howardina) fulvithorax (Lutz)	No (Negative to date, but)
		numbers inadequate
8.	Aedes (Ochlerotatus) fulvus (Wiedemann)	No No experiments
9.	Aedes (Taeniorhynchus) fluviatilis (Lutz)	Yes. Readily infect.
<hr/>		
10.	Aedes (Ochlerotatus) crinifer (Theobald) ?	No

This species is known to occur around Rio and further south, but has not been taken here.

+ Ae. fulvus was found by us in Bomfim but has not been taken in the neighborhood of the capital.

Received from DBW
Aug. 7/1930
F.L.S.

N. C. D.

August 12th. JTA wires that Dr. Ferreira Pinto wishes to work with the yf service beginning September. As FP has been with the Malaria Service of the Division in the State of Rio for a good many years, I shall do everything possible to take him on; probably good man to aid in epidemiological investigations. It was he who assisted me in collecting bloods from Magé last year.

August 13th. Left Recife at 8:30 AM with ERR in Chevrolet touring car for a one week tour of the States of Alagoas and Pernambuco with the following itinerary:

1st day, Cabo, Excada, Frexeiras, Ribeirão, Gamelleira, Joaquim Nabuco, Palmares, Ribeirão.
2nd day, Gamelleira, Cucaú, Barreiros, São José, Marogogy, Pedras, Barra Santo Antonio, Maceió.
3rd day, spent in Maceió.
4th day, São Miguel, Penedo, São Miguel.
5th day, Anadia, Tanque Darca, Mar Vermelho, Pindóba, Vigosa.
6th day, Quebrangulo, Palmeira dos Indios, Bom Conselho, Garanhuns.
7th day, São Caetano, Caruarú, Bexerros, Gravata, Victoria, Morenos, Recife.

The speedometer showed a total kilometragem for the trip of 1422; notes were taken during the trip of distances from one point to the next but are not included here as they are of little value in planning time taken; suffice it to say that each day's trip carried out according to above schedule gave each of us all the work we wanted for the day driving only one half the distance. Drivers were changed every thirty kilometers during most of the trip and the roads were such that seldom did the man driving forget to look at the speedometer in time to make the shift. However, with the exception of the zone in the State of Alagoas between Anadia and Quebrangulo which is really quite a hilly almost mountainous district, the situation in regard to road improvements can be considered hopeful. Doubtless during the peak of the dry season, most of the roads traversed will be in very good shape.

Palmares service consisting of three guardas and one guarda chefe, who also acts as guarda chefe for the services in São Benedito and Quipapá, was inspected by Dr. Rickard only minor defects being found.

Ribeirão. Slept here under mosquito nets; many culex and plenty of stegs about in spite of part time municipal service.

August 14th. Met at Barra Santo Antonio by Dr. Almeida who returned to Maceio with us. Reports there can be no doubt of the diagnosis of yf in Pindoba.

August 15th. Assumption Day and a full holiday for everybody except the yf service in Maceió. Announced to Dr. Almeida that from now on he will report directly to ERR and that all reports of all kinds are to go to Recife; call on Dr. Meneschal, director of the State and Federal Health Services here and present ERR as our sectional director. Discuss possibilities and need for autopsies. ERR goes over organization and local situation with MA; no changes to be made at present time.

Dr. Uchoa wires that Doyle has taken over direction of service Fortaleza. ^{from} P.R.
 DEW notified price of Chevrolet includes bumpers and shock absorbers.
 Authorize Machado to purchase furniture for my office Recife.
 PJC requests another car for Pará; Tate of GM authorized to ship from Recife one 1929 Chevrolet touring car at 4:509\$ plus cost of transportation.
 PJC wires monkey with blood from Kislanov showed nothing in two weeks.
 NCD; Liver Marie Andrade Natal Negative.

Bloods Raymundo Passos, Joaquim Passos, Francisca Passos and Domingos Andrade of Pará all failed to protect rhesus.

DEW sent copy of yf contract in response to urgent request; should catch Condor plane tomorrow. I cannot imagine why he needs the contract.

Residence, Edgar Farias, Travessa de Curro 36

Harold Chandler, Trav. Benj. Constant 96 Pará.

August 16th. DEW returned to Bahia to-day after two days in Aracajú.

ERR MA and I visit service in Penedo, the principal port at the mouth of the São Francisco River. Call on Dr. Jocelyn Fraga, director of the local health post who has not been too helpful in the past according to MA who believes that JF feels that he ought to be on the payroll of the yf service. Find very inadequate installation for handling fish. Rode through large areas apparently almost uninhabited today between São Miguel and Penedo. Sleep at São Miguel with mosquito nets; plenty of foci right in the hotel.

August 17th. Sunday. Visit ANADIA again my first visit being on May 19th when I was here with MA investigating suspect yf; we came to conclusion on previous visit that the town was free from visible yellow fever and today three months later were able to learn of no further suspicious cases. Also visited the nearby village of Tapera, also under suspicion on our last visit, and learned that here also nothing further has happened.

Stopped at PINDOBA, 16 kilometers from Vigosa, long enough to satisfy ourselves that there have been clinical cases of yellow fever here during the past three months; it is hard to estimate how many cases or even how many deaths there have been here without making a complete study of the place. From incomplete information it would appear that some five or six adults at least have died; children generally don't count in a case of this kind here. Our rapid history taking included one family where some six persons had been ill with no fatalities. We were also told that 'many people were sick but few died and that almost all the children were ill'. Pindóba is a small place with hardly enough work to keep one man busy. Service has been organized and will be continued until all immediate danger is over and then will be kept under observation and occasional inspection.

Spend night at VICOSA; no recent cases of yf have occurred and the index is now down to three percent. The incomplete studies of MA indicate that there were approximately one hundred cases in Vicosa from February to June with about twenty deaths.

August 18th. MA returns to Maceió on morning train because of infected leg needing rest and medical attention. ERR and I drive to Quebrangulo; much more of a town than we had expected; for all practical purposes the end of the railway branch and a strategic point. Then to Palmeira dos Índios, the Queen of the Sertão which is also quite a town for an interior point. Control service was maintained here from August 1st to December 31 last year because of suspect cases occurring in June 1929. On to BOM CONSELHO where we find the guarda working in plain clothes; reports all quiet here. Sleep in Garanhuns.

August 19th. Return Garanhuns Recife visiting São Caetano and Bezzerros services enroute. Arrive office 415 PM.

Bião wires Mage complete with many refusals; wire for him to report to Recife, leaving sera with Davis in Bahia enroute.

NCD; MANOEL SANTOS PARÁ positive. PJC wires MS had leprosy, malaria and had been dead 24 hours before autopsy and requests reaffirmation of diagnosis from NCD. Following wire sent NCD; "Crawford reports Manoel Santos had malaria and leprosy stoAutopsy performed twenty four hours after death stop Would this information alter your diagnosis? Soper."

August 20th. Authorize Rio to continue sending 15 contos per month to Ceará.

Application was made on August 6th for a patent on an "Extractor de Fragmentos de Visceras de Cadaveres" in the name of Dr. J. Tomaz Alves, publication occurring in the Diario Oficial August 8th page 15524.

Took possession of the new office and went to work. *Recife* *Fls office Recife*
Wired Rio at NCD request that future shipments of monkeys should come in individual compartments; he reports getting ninety seven live monkeys out of one hundred shipped on last shipment. Of course this is the most favorable season of the year.

Robinson informed that we can order the ten kilos of trypanamide he desires for mal de caderas treatments but that shipment will have to be made to him and duties paid on importation.

August 21. My first manipulation of the Extractor of Liver Fragments occurred today at the Santo Amaro Hospital on a cadaver 19 hours after death. Was quite surprised to find how easily and how quickly satisfactory fragments can be secured.

Following estimates submitted to FFR for 1930

Br. Phys.	18 contos	2160.00
Nursing	20	2400.00
Office	50	6000.00
Lab		65000.00
YF	2500	300000.00

NCD; Joanna Rodrigues, Pará, negative.

NCD copy of letter to PJC asking for collection of blood specimens from Pará for filiariasis studies of July 28th received; I believe such matters should be approved and arranged by me rather than handled directly between the laboratory and the field units. Shall discuss the matter with Davis when next in Bahia.

NCD letter July 26th, "Upon my return from Pará I allowed myself to be persuaded that the Santos case had malaria only. My present opinion is that yellow fever is present. I still believe that malaria takes a part in the picture. However, probably most of the pigment is the result of formation fixation." This refers to the Maria LEONORA SANTOS case, BELEM PARA March 19th 1930.

CFragas letter of August 13th translated and forwarded with CF letter to MEC; MEC apparently gave CF to understand that he did not expect to return to Brazil.

August 22. Advise Rio and DEW and PJC that I shall arrive in Bahia August 28.

Bião sailed from Rio August 21; should arrive Recife August 27th. Biao will spend a couple of weeks with ERR in Recife and then will relieve MA in Alagoas while he comes to Recife for further training in methods. MA has done very good work in Alagoas considering the amount of assistance he has had and considering the fact that he is a home town boy; better cooperation from the local authorities can probably be secured with an outsider.

NCD; Carlos José Andrade, Pará protected

Jovenilha Andrade, probably protected.

Walter Gaisle, Ilheos, almost certainly protected.

Manoel Pelletero, Bahia, negative.

Arranged for NCBank here to order payment to Standard Oil in Rio of 218:856\$.

Prepared and sent to Rio autopsy note for O Saneamento.

DEW explains that he wished copy of contract to see if any provision had been made for lawyer's services in the carrying out of intimações and fines. (Dr. Carlos Mattos, lawyer for the SSAP in Bahia had tried to collect for his services in connection with collection of fines: ALBB had gone on record however as opposed to such payment and insisted that he must continue to do the work as part of the work of the regular health service.)

PJC advised that Chevrolet touring car was shipped him this week.

August 23. Left Recife 8 AM for Parahyba with ERR; many military in evidence and some burned houses seen; many houses still flying black flags of mourning for the murdered president and some also flying red flag of vengeance! Reports are that all fighting in the interior has ceased although there may be some difficulty next week on the day of the THIRTY DAY MASS.

Met Dr. Rodrigues Porto, who is now in charge in Parahyba; he reports service in good shape in Parahyba but completely disorganized in Cabedello. Present Dr. Rickard to Dr. Alvaro Carvalho, now President of Parahyba, who explains that he will do everything possible to make the yellow fever service successful in his state. Also present Dr. ERR to Dr. Guedes Pereira who promises to continue his interest and assistance to the work under ERR's immediate direction. GP informed that ERR will return next week for the purpose of going over the local organization and making certain modifications to conform to procedure at other points. (Intimation and fining services not mentioned today although this is most important change anticipated; atmosphere one of formal presentation of regrets over loss of President not favorable to definite discussion of details.) Returned Recife 8 PM feeling day well spent.

August 24th. Sunday. Day at office. Wired Rio to make arrangements to purchase a copy of the RIO YELLOW FEVER FILM.

Aug. 25th. Liver Antonio Joaquim Ferreira. FIRST ROUTINE AUTOPSY SAO LUIZ negative. NCD. POWER OF ATTORNEY made for JTA to receive from treasury 33 contos due DNSP. Advised Dr. Bailey to sail for Pernambuco rather than Rio; scheduled to arrive in Recife Oct. 22nd on Almanzora.

FFR advises of suspect yf in SANTIAGO CHILE in May. I consider impossible but am wiring CF and JBB for details.

Demonstration model of LIVER PUNCH sent by airmail to FFR.

August 26th. Day at office. FFR notified of intention to leave Rio office without American in charge; suggest JTA be BONDED to handle all financial affairs.

NCD Aug. 21:

"In my opinion postmortem changes, malaria or leprosy considered individually would not account for the lesions in Manoel Santos; whether or not the combination would do the trick I do not know. Postmortem changes are rather marked, but there was undoubtedly a pre-existing injury. There is a little pigment-not nearly so much as in some of the Natal cases. But there is much fat and jacking of the cell columns in the midzones. There may not have been much actual necrosis; it is rather hard to say now on account of postmortem changes. However, there are inflated nuclei, fading nuclei, etc., some of which may have been present ante-mortem. Under the circumstances, and considering pm. changes of undeterminable degree, perhaps I should have said, "Very suggestive of yellow fever." That is still my opinion. We shall be glad to show you a slide later." (This refers to case noted this journal 19-8. from Belem.)

Biao suggests name Viscerotome for Liver Punch - christened!

August 27th. Sail Almanzora for Bahia. Dr. and Mrs. Cross, Mr. and Mrs. Goodman, Mr. and Mrs. Gillette and Mr. Tate on board.

August 28th. Met by Dr. Wilson and get to Pensão about midnight.

JTA advises SANTIAGO CASE not confirmed.

August 29th. With DBW call on the Minister of Health, ALBB., who is quite friendly at present; demonstrate to him the viscerotome and promise him an instrument for his service as soon as manufacture begins. DBW insists that ALBB has been giving full cooperation! (Incidentally this full cooperation began after CF's trip to the north last year at which time CF reported to the Governor that ALBB was not showing the proper spirit; the Governor at that time promised that no further passive resistance would be encountered here.)

Discuss local situation with DBW and authorize opening in Ilheos since NCD has reported protection in June case; also in anticipation of extended programme suggest that surveys be made in following centers which are close to Bahia and would logically be the first point of attack on extension; Alagoinhas, Cachoeira, Nazareth, Santo Amaro and Feira de Santa Anna. In connection with Ilheos, Itabuna is to be surveyed and possibly worked.

DBW suggests that as part of the survey, larval counts be made on 1000 containers in each point; on consideration we decide to do larval counts in Ilheos only for the present but to have such counts made weekly thus following the improvement with work both from the house index and from the mosquito production points of view.

Rumour has it that the Ministry of Health may change hands with the advent of the new government in November; Dr. Afranio Peixoto, at present Federal Deputy from this state is the most talked of candidate. Fortunately Dr. Peixoto is well known to our service and is very sympathetic to the cause.

Decide on 1:5000 scale for BAHIA MAP.

August 30th. Day spent at the Laboratory at Montserrat.

Frobisher's monkey still survives its protection test seven days after inoculation without sign of fever while the controls and other test animals of the same series have either died or are very sick; NCD believes in value of large doses of immune serum early in the disease.

Magé study practically complete; MF would like to secure further bloods if possible for one year after studies on complement fixation.

MF has been working on chemistry of fat in monkey liver; Asks if any results from Wakeman's work are available; desires pure Hexylresorcinol.

NCD reports that MOUSE STRAIN was not lost but that his animals are still

August 30th. continued. dying from mouse typhoid and that the pathology of the animal with both ~~mouse~~ typhoid and yellow fever is not greatly different from that of the mouse with typhoid alone! NCD is rather pessimistic regarding the possibilities of the mouse work although he now has the virus well beyond the 60th transfer in these animals.

NCD and I discuss in detail Shannon's proposed trip to the Amazon Valley; I finally approve the trip as proposed on August 7th but with departure from Bahia only after the preparation for publication of material now on hand; RS estimates that such preparation should occupy him until the middle of October at least, without taking into consideration the systematic working up of new species collected. Departure from Bahia then should be about the 20th of October.

NCD believes that the entomological work of the yellow fever service can be more profitably done by a physician who knows some entomology rather than by an entomologist; obscure species can always be forwarded to specialists for classification; NCD is not then requesting the return of Shannon to this field.

NCD and I have long frank discussion of position of laboratory in regard to rest of yellow fever service; I suggest that we attempt to maintain contact between the laboratory and the services away from Bahia through me and that the same procedure be used regarding contact with the New York office. It is true that I shall be travelling a great deal but with improved airmail service no great delays should occur, especially as I propose to keep NCD constantly informed by wire of my proposed movements.

NCD insists that laboratory is equipped to handle large amount of work from the field and rather challenges the control service to get enough autopsies and bloods to gum up the works; in regard to epidemiological studies of immunity distribution, NCD says the laboratory could well handle two hundred monkeys per month rather than the one hundred now received.

NCD has been able to demonstrate variation in 'extrinsic incubation period' of the virus in the mosquito with variation in temperature at which mosquitos are kept; his ability to shorten the incubation period by increasing the temperature may explain the case reported by Aragão in which the incubation period was apparently cut down to four days!

NCD complains that no information is sent out regarding the work being done in New York and in Lagos and that there is no effective coordination of program by the three laboratories as was anticipated last year.

August 31st. Sunday. Demonstrate with fair results use of Viscerotome on cadaver at the Asylum to DBW, Cardoso and Magalhaes Neto.

September 1st. ANALYSIS OF "SALUS" scrapings by Inst. Os. Cruz. Bahia. No. 268.

Anions: Chloro, sulfurico, phosphorico, silico.

Cations: Sodio, Ammonio, Calcio, Magnesio, Ferro, Aluminio.

Aug. 8th Dr. A. Diniz Gonçalves.

(And the propaganda justifies the high cost of these jars because of the silver used in their manufacture!!!!!!)

HOUSE

AM spent with Dr. Cardoso inspecting gutter gangs. Five gangs of five men each are inspected by a guarda chefe. All gutters are naturally dry at the present time. As the work is considered vital however and as the men cannot be easily replaced, the work is going on as usual but at a somewhat slower rate than previously as each gutter is being flooded by hand to determine whether it will hold rainwater or not. Those gutters holding water are punctured with the consent of the parties concerned; where gutters cannot be punctured legal machinery is set to work to require the necessary corrections. As the local authorities are giving good support on the enforcement of the law, it would appear that even during the rainy season it might be well to apply the hand flooding test to all gutters examined so that a uniform basis of correction might be had.

Of the five gangs visited, three were found to be punching inadequate holes in the imperfect gutters; EC insists that this is in spite of repeated instructions to make the punctures as large as the drain pipes. The gutter can-opener invented by one of the guardas seems to function very well when sharp; I suggest furnishing two to each squad so that one may always be sharp and in service.